

PATENT CLAIMS:

Claims 1-23: Canceled

24. (New) A method for increasing the driving stability of a motor vehicle during braking, in which compensation steering angles for a controllable steering system are calculated from several input parameters, so that the driving stability of the motor vehicle is increased by steering interventions, wherein in the steering interventions an interference compensation portion is considered in the calculation of the compensation steering angles on the basis of the driving condition of the vehicle.
25. (New) The method according to claim 24, comprising the steps of determining a first interference compensation portion of the compensating steering angle demand $\Delta\delta$ taking into consideration brake force differences on braked wheels of the vehicle, and determining a second interference compensation portion from the driving condition of the motor vehicle and modification of the steering angle depending on interference compensation portions.
26. (New) The method according to claim 25, wherein the second compensation portion is calculated in a device including a reference vehicle model circuit in which the input parameters necessary for defining the course, such as vehicle speed, steering angle, and - if necessary - friction coefficient, are introduced, which due to a vehicle model being built in the reference vehicle model circuit and simulating the characteristics of a vehicle defines a nominal value for a controlled quantity and in which this nominal value is compared with a measured value for this controlled quantity in a comparative unit, calculating the second compensation portion of the steering angle $\Delta\delta_r$ on the basis of the comparative value representing the controlled quantity.

27. (New) The method according to claim 26,
wherein one element out of the group consisting of yaw angle speed, lateral acceleration, and floating angle, is defined as nominal value for the controlled quantity.
28. (New) The method according to claim 25,
wherein the first compensation portion $\Delta\delta_z$ is determined taking into consideration an interference yaw torque M_z calculated from different brake forces and the second portion $\Delta\delta_R$ is determined taking into consideration vehicle yaw behavior.
29. (New) The method according to claim 25,
wherein the first compensation portion is an open-loop control portion and the second compensation portion is a closed-loop control portion.
30. (New) The method according to claim 24,
wherein the interference yaw torque M_z is calculated from a logical operation of a steering lock angle of steered wheels, of brake forces and of rotational behavior of the wheels.
31. (New) The method according to claim 30,
wherein the brake forces are calculated from brake pressures on the basis of the relation

$$\hat{F}_{x,i} = f\{r, B, p_i, J_{whl}, \dot{\omega}_i\}$$

with

$$\hat{F}_{x,i} = \text{Brake force on one wheel } i$$

r = dynamic wheel radius

B = Brake parameter

p_i = Wheel brake pressure

J_{whl} = Moment of inertia of the wheel

$\dot{\omega}_i$ = Rotation acceleration of a wheel i

or

$$\hat{F}_{x,i} = f\{r, B, p_i\}$$

32. (New) The method according to claim 31,
wherein the interference yaw torque is calculated on the basis of the relation

$$\hat{M}_z = f\{\hat{F}_{FL}, s_{FL}, \hat{F}_{FR}, s_{FR}, l_F, \hat{F}_{RL}, s_{RL}, \hat{F}_{RR}, s_{RR}, \delta\}$$

with

\hat{F}_{FL} = Brake force on the front at the left

s_{FL} = half the tread of the left front wheel

\hat{F}_{FR} = Brake force on the front at the right

s_{FR} = half the tread of the right front wheel

l_F = Distance between front axle and center of gravity

\hat{F}_{RL} = Brake force on the rear at the left

s_{RL} = half the tread of the left rear wheel

\hat{F}_{RR} = Brake force on the rear at the right

s_{RR} = half the tread of the right rear wheel

δ = Wheel steering lock of the steered wheels

33. (New) The method according to claim 24,
wherein compensation gains K_{FFW} of single feed-back controlled quantities are adapted depending on the driving behavior of the vehicle and possibly the environmental conditions.

34. (New) The method according to claim 25,
wherein the second compensation portion $\Delta\delta_R$ of the steering angle compensation $\Delta\delta$ is calculated from a P portion $\Delta\delta_{R,P}$ based on a vehicle yaw rate deviation $\Delta\dot{\psi}$ and a D portion $\Delta\delta_{R,D}$ based on a yaw acceleration deviation $\Delta\ddot{\psi}$.

35. (New) The method according to claim 34,
wherein the P portion is calculated according to the relation

$$\Delta\delta_{R,P} = K_{FB,P}(v) * \Delta\dot{\psi}.$$

36. (New) The method according to claim 35,
wherein the gain factor $K_{FB,P}(v)$ for the feedback of the controlled quantity of the yaw rate deviation $\Delta\dot{\psi}$ depends on the vehicle speed.

37. (New) The method according to claim 34,
wherein the D portion is calculated according to the relation

$$\delta_{R,D} = K_{FB,D}(v) * \Delta\ddot{\psi}.$$

38. (New) The method according to claim 34,
wherein the gain factor $K_{FB,D}(v)$ for the feedback of the controlled quantity yaw acceleration deviation $\Delta\ddot{\psi}$ depends on the vehicle speed v .

39. (New) An ABS control method in which a yaw behavior resulting from brake actuations with different brake pressures or forces on the single wheels, which is defined from the determined brake force difference, is at least in part compensated by the intervention of a controlled steering system, wherein in the steering interventions an interference compensation portion is considered in the calculation of the compensation steering angles on the basis of the driving condition of the vehicle.

40. (New) The ABS control method according to claim 39,
wherein a driving condition is determined by means of a yaw behavior resulting from different braking pressures or forces and admitting steering interventions, if at least the following conditions are satisfied with recognized straight-forward driving or cornering:

- a) stop light switch signal present and
- b) stop light switch sensor in working order and
- c) brake actuation by the driver recognized by means of the TMC pressure and
- d) driving straight forward is recognized.

41. (New) The ABS control method according to claim 39, wherein, after it is recognized that the vehicle is driving approximately straight forward, compensation steering angles are calculated if at least one of the following conditions is satisfied:
- e1) if one front wheel is controlled by the ABS system for a certain period of time and the other front wheel is not controlled by the ABS system or
 - e2) if both front wheels are in a first ABS cycle and the pressure difference on the front axle exceeds a limit value or
 - e3) if both front wheels for a certain period of time are controlled by the ABS system and at least one front wheel shows a certain minimum ABS blocking pressure and one blocking pressure exceeds the blocking pressure of the other wheel by more than a limit value.
42. (New) The ABS control method according to claim 39, wherein, after it is recognized that the vehicle is cornering, compensation steering angles are calculated if at least one of the following conditions is satisfied:
- e1) the curve outer front wheel is controlled by the ABS system before the curve inner wheel or
 - e2) if for a certain period of time both front wheels are controlled by the ABS system and at least one front wheel shows a certain minimum ABS blocking pressure and the blocking pressure of the curve inner wheel exceeds the blocking pressure of the curve outer wheel by more than a certain limit value.
43. (New) The ABS control method according to claim 39, wherein at least one of the following requirements must be satisfied in order to terminate the steering interventions:
- a) no front wheel is controlled by the ABS system,
 - b) there are no stop light switch signals,
 - c) the stop light switch sensor is defective, or
 - d) the brake actuation by the driver is not.

44. (New) An ABS brake pressure control method for a two-axle, four-wheel vehicle with single-wheel control on at least one vehicle axle in which due to a different friction coefficient on the two vehicle sides a yaw behavior occurring during ABS control is compensated at least in part by calculating a compensation steering angle for steering control and superimposing it on the vehicle steering angle, comprising the steps of
admitting high pressure build-up gradients on a wheel with a high friction coefficient

admitting pressure differences on the rear axle according to the relation

$$\Delta p_{HA} = f(\psi, \delta_{whl}, v, a_y).$$

45. (New) The ABS brake pressure control according to claim 44,
wherein a traditional ABS control strategy is used if the steering control fails.
46. (New) A driving dynamic controller with at least an ESP and an ABS function being connected to a controller and/or a control for correcting the steering,
comprising a first determination unit for determining a steering angle required by the driver
a second determination unit for determining an interference compensation steering angle on the basis of brake forces
a third device for determining an interference compensation steering angle on the basis of the vehicle yaw behavior and
a logic unit for linking the first and the second interference compensation steering angle with a compensation steering angle demand.